

Short-Term Effects of Environmentally Relevant Concentrations of Organic UV Filters on Signal Crayfish *Pacifastacus Leniusculus*

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Abstract : Personal care products, including organic UV filters, are considered emerging contaminants and their toxic effects have been a concern for the last decades. Sunscreen compounds continually enter the surface waters via sewage water treatment due to incomplete removal and during human recreational and laundry activities. Despite the environmental occurrence of organic UV filters in the freshwater environment, little is known about their impacts on aquatic biota. In this study, environmentally relevant concentrations of 5-Benzoyl-4-hydroxy-2-methoxybenzenesulfonic acid (BP-4, 2.5 µg/L) and 2-Phenylbenzimidazole-5-sulfonic acid (PBSA, 3 µg/L) were used to evaluate the cardiac and locomotor responses of signal crayfish *Pacifastacus leniusculus* during a short time period. The effects of these compounds were evident in experimental animals. Specimens exposed to both tested compounds exhibited significantly bigger changes in distance moved and time movement than controls. Significant differences in changes in mean heart rate were detected in both PBSA and BP-4 experimental groups compared to control groups. Such behavioral and physiological alterations demonstrate the ecological effects of selected sunscreen compounds during a short time period. Since the evidence of the impacts of sunscreen compounds is scarce, the knowledge of how organic UV filters influence aquatic organisms is of key importance for future research.

Keywords : aquatic pollutants, behavior, freshwaters, heart rate, invertebrate

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